# Su-Juan LIN: **An Endangered Fern Species *Sphenomeris minutula* Kurata (Lindsaeaceae), Newly Discovered in Okinawa**

奄美大島固有の絶滅危惧種コビトホラシノブ（ホングウシダ科）沖縄で発見（林 蘇娟）

*Sphenomeris minutula* Kurata (Lindsaeaceae) is a rheophyte fern species and is known to be endemic to the Sumiyo River, Amami-Oshima Island, Kagoshima Prefecture, southern Japan.

The author visited Amami-Oshima Island to look for living material for the study of lindsaeoid ferns several years ago, but it was not found. Only one plant (individual), which was conserved by a local fern lover in the garden, was observed. As a threatened wildlife of Japan, this endangered species, was graded IA (CR), and it was noted by Red Data Book of the Japanese Environmental Agency (2000) that the species *S. minutula* was very likely extinct.

However, the author discovered a living population of *S. minutula* on the mossy river rocks (Fig. 1), along the Urauchi River, Iriomote-jima Island, Okinawa Prefecture (24°21′N, 123°47′E) in March of 2006. This is a new distribution record of *S. minutula.* As a rheophyte fern, they are living on mossy rock in the river under evergreen forest. Environment of the habitat resembles natural environments of Sumiyo River, Amami-Oshima Island very much.

As shown in Figure 1, this is a very tiny fern, most of the leaves are fertile, about 1–3.5 cm long; rhizome creeping; stipes green, very slender. Laminae ovate or oblong, bipinnate or tripinnnate, and the ultimate segments cuneate as that described by Kurata (1965), Nakaike (1982), Iwatsuki (1992, 1995). Each cup-liked sorus was terminal on the margin of ultimate segment with 3–10 sporangia. Normal thirty-two spores were counted in each sporangium (Fig. 2C).

Based on the cytological observations, eight spore mother cells per sporangium with

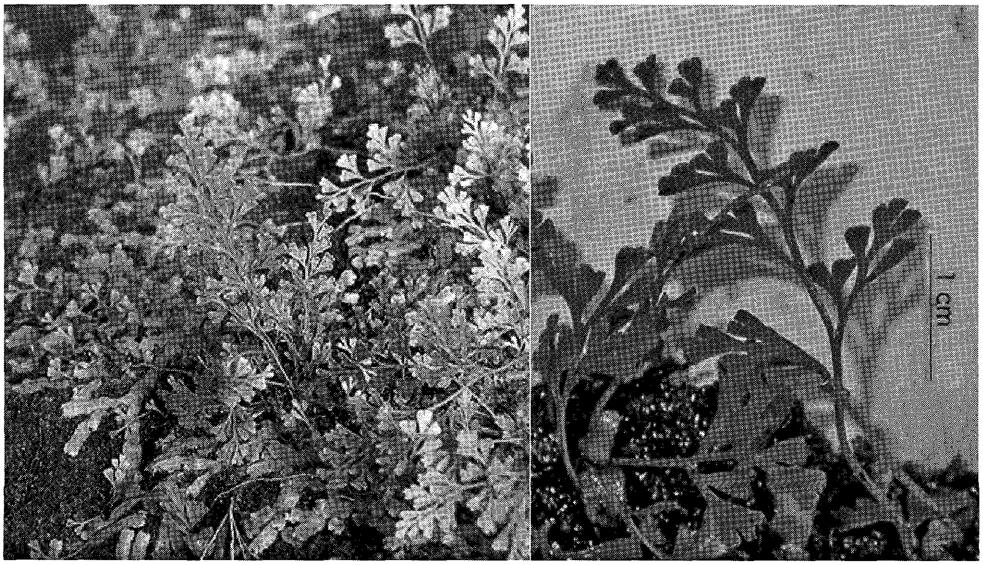

Fig. 1. *Sphenomeris minutula* Kurata on mossy river rock.

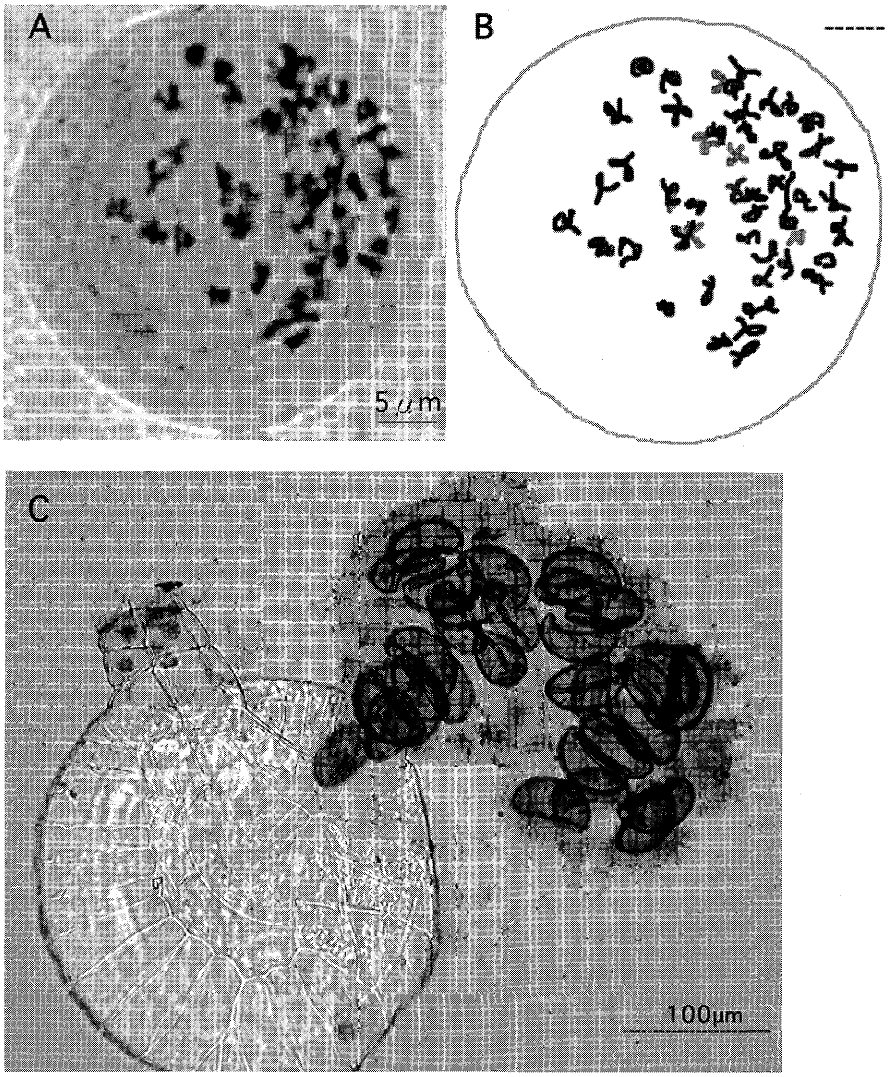

Fig. 2. A: Gametic chromosomes of *Sphenomeris minutula,* n = ca. 49II. B: Explanatory drawing of photo A. C: Thirty-two spores in a sporangium.

normal meiotic divisions were counted to have chromosome number n = ca. 49II (2x) (Figs. 2A, B), resulting to produce thirty-two spores. This result was also recorded with the observation of *S. minutula* from Sumiyo River, Amami-Oshima Island (Lin et al., 1990). It was confirmed that the tiny fern found from Urauchi River, Iriomote-jima Island, Okinawa Prefecture, is the endangered species *S. minutula*, and it is a 32-spory sexual reproduction, diploid species. A herbarium specimen (Lin 060321-41) will be sent to the Herbarium, Faculty of Science, the University of Tokyo (TI), and one living plant is cultured in a green house of Department of Biological Science, Faculty of Life and Environmental Science, Shimane University.

Except for *S. minutula*, the diploid sexual species of Japanese *Sphenomeris*, *S. biflora, S. chinensis* and *S. gracilis,* were recorded in Iriomote-jima Island and two of the latter were in Urauchi River area (Lin et al., 1990). The discovery of *S. minutula* in Urauchi River, Iriomote-jima Island, may offer valuable information to a systematic study of diploid species of Japanese *Sphenomeris* plants, and the origin of the reophyte. However, it is still pending to make a detailed investigation regarding distribution, populations, individuals of *S. minutula* in Urauchi River and making the conservation measure.

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奄美大島固有種のコビトホラシノブ *Sphenomeris minutula* は十数年前から生息地の住用川から姿が消え，レッドデータブック（植物 I）に IA（CR）類の絶滅危惧種として記録されている．著者は2006年３月に沖縄県西表島の浦内川でコビトホラシノブの集団を発見し，細胞学的観察によって n＝ca. 49II の有性生殖二倍体であることを確認した．

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## Devendra M. BAJRACHARYA[a] and Krishna K. SHRESTHA[b]: *Eria clausa* King & Pantl. (Orchidaceae), a New Record from Nepal

### ネパール新産の *Eria clausa* King & Pantl.（ラン科）（D. M. バジラチャリア[a]，K. K. シュレスタ[b]）

The genus *Eria* Lindl. is one of the larger polymorphic genera of the family Orchidaceae. It has about 370 species in the world (Pearce and Cribb 2002).

During a revision of the genus *Eria* in the Himalayan region a species of *Eria* was found to be overlooked among the orchid species of Nepal. A specimen of *Eria clausa* King & Pantl. is deposited in Natural History Museum (BM) London (N. Wallich 7 from Napalia in 1821) it was identified by Tuyama in 1977. Occurence of *Eria clausa* in Nepal has not been mentioned (Hara et al. 1978, Banerji and Pradhan 1984, Press et al. 2000). Paudyal and Amatya collected a specimen of *E. clausa* from Central Nepal in 1981 from Pharping/Sunderijal, Kathmandu Valley and reported here as new to Nepal. Gupta (1984) and Poudyal and Shakya (1984) covered a list of Kathmandu Valley including *E. clausa*: but description, illustration and citation of specimen of *E. clausa* was not made. Recently this species has been collected from Lumle, Pokhara valley. These specimens were also verified with the type specimens of *E. clausa* King & Pantl. (holotype CAL; isotype K). Therefore, we have described detailed description, illustration, citation of specimen and other relevant notes provided here, based on both speci-